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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kristoph D. Krug et al. Art Unit:
Serial No.: 07/566,083 Examiner:
Filed : August 10, 1990
For : DEVICE AND METHOD FOR INSPECTION OF
BAGGAGE AND OTHER OBJECTS

#4/a

Box Amendment

Commissioner of Patents and Trademarks
Washington, DC 20231

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AMENDMENT

Gentlemen:

Please amend the above-identified application by
adding the following claims.

55
257. A device for detecting a specific material of
interest in a package or suitcase comprising:

means to acquire x-ray transmission data through many
spatially adjacent points of a package or suitcase at least at
two substantially different energies,

and means to computer process the x-ray data which
include:

treating the data spatially as numerous "object"
regions and neighboring background regions, where each "object"
region is taken as having substantially the same x-ray
attenuating properties as a neighboring background region except
for the addition of a thickness of unknown material,

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LA10141 10/28/92 07566083

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Suzanne C. Kelly

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P₁ processing the data in numerous "object" regions and respective neighboring background regions to characterize the x-ray properties of the assumed thickness of unknown material of the "object" regions with the contribution of background removed,

P₁ and comparing the determined x-ray properties of the thickness of unknown material in the "object" regions to the properties of the specific material of interest to determine if the "object" regions are likely to contain the specific material of interest. (S)

W 56
(S) 58. The device of claim 55 in which the characterization of the x-ray properties of the thickness of unknown material for an "object" region includes a parameter substantially equivalent to the effective atomic number, Z, of the unknown material. (S)

57
(S) 59. The device of claim 56 in which the effective atomic number Z is calculated with an accuracy enabling distinction between plastic substances having small differences in effective atomic numbers. (S)

58
(S) 60. The device of claim 55 wherein the means to computer process the x-ray data is constructed to treat a given region of the data as a background region during one comparison and as an "object" region during another comparison. (S)

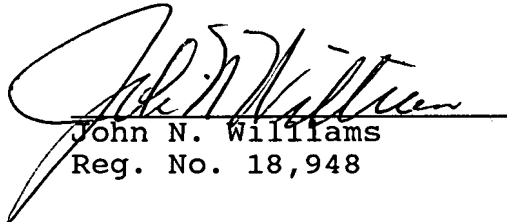
⁵⁹
~~61~~ The device of claim ⁵⁵~~57~~ wherein the means to computer process enables the background region to include the same material as the unknown material but of a lesser thickness. ~~62~~

⁶⁰
~~62~~ The device of claim ⁵⁵~~57~~ wherein each object region is a pixel, i.e. the smallest size resolution element of the device. ~~63~~

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Respectfully submitted,

Date: MAY 7 1991


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